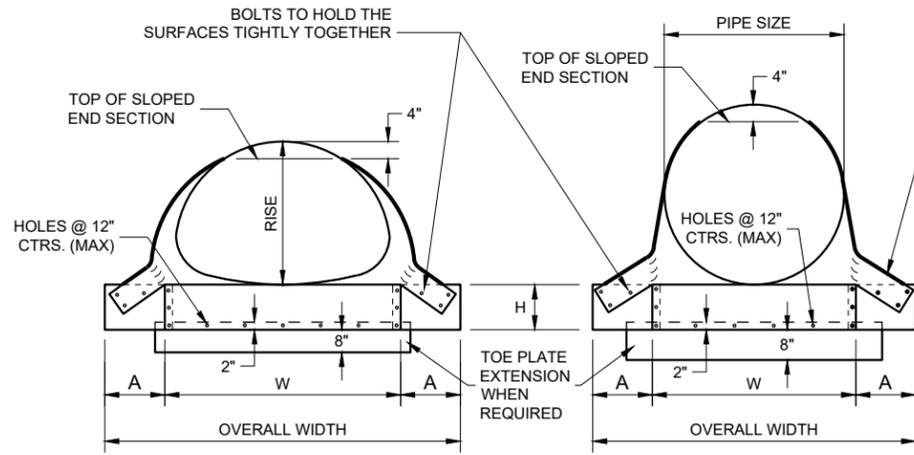
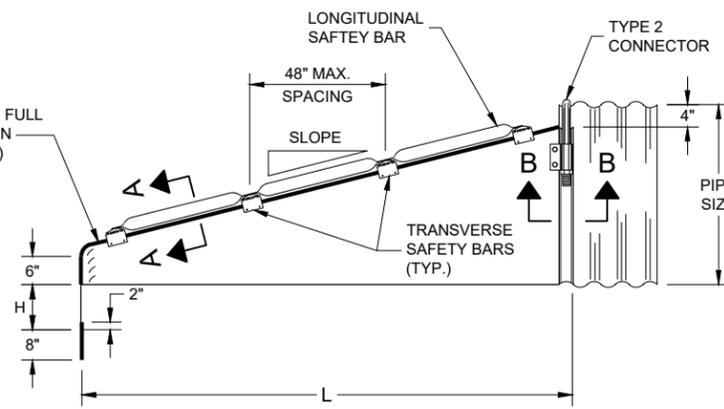


# SDD 08F08 Steel Apron Endwalls for Culvert Pipe and Pipe Arch Sloped Cross Drains



**FRONT VIEW**

**FRONT VIEW**



**SIDE VIEW**  
(48" SIZE ILLUSTRATED)

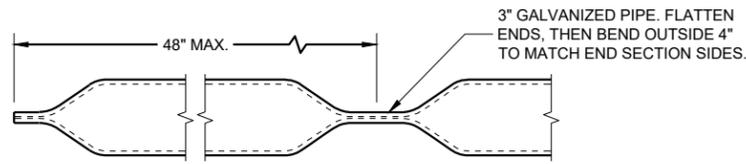
## GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

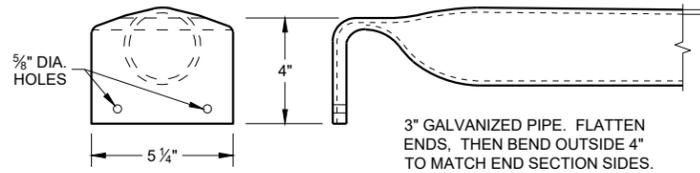
SAFETY GRATES SHALL BE FABRICATED FROM 3-INCH DIAMETER GALVANIZED PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL. THE LONGITUDINAL BAR SHALL BE WELDED TO THE TRANSVERSE BARS WHERE THE BARS CROSS. THE NUMBER OF TRANSVERSE BARS REQUIRED WILL VARY DEPENDING ON THE LENGTH OF THE END SECTION.

SLOPED STEEL ENDWALLS LOCATED AT THE ENDS OF CONCRETE CULVERT PIPE SHALL BE FURNISHED WITH STEEL ADAPTER SLEEVES.

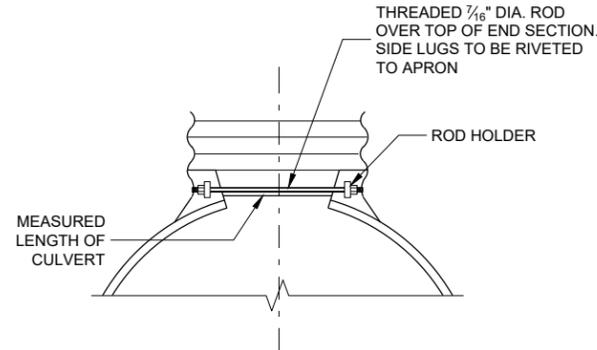
PIPE DIA. (IN.)	MIN. THICKNESS		DIMENSIONS (INCHES)				L DIMENSIONS (INCHES)			
	IN.	GAGE	A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
36	.109	12	12	9	42	66	4:1	104	6:1	156
42	.109	12	16	12	48	80	4:1	128	6:1	192
48	.109	12	16	12	54	86	4:1	152	6:1	228
54	.109	12	16	12	60	92	4:1	176	6:1	264
60	.109	12	16	12	66	98	4:1	200	6:1	300



**LONGITUDINAL SAFETY BAR**

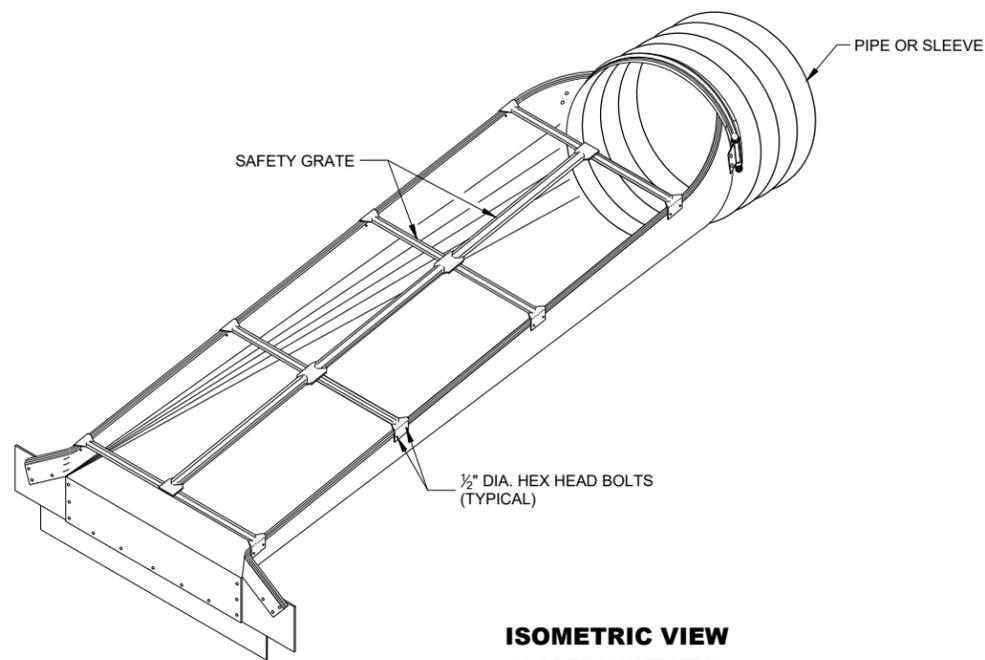


**TRANSVERSE SAFETY BAR**

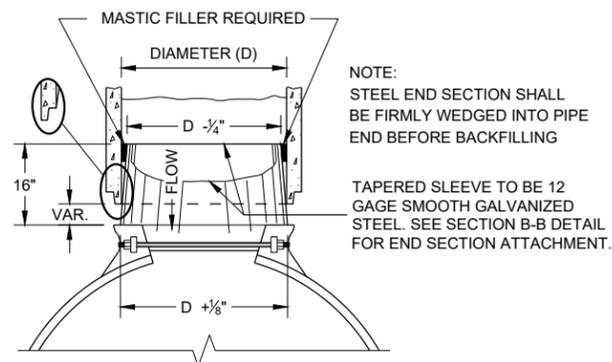


**TYPE 2 CONNECTION DETAIL**

EQUIV DIA. (IN.)	INCHES		MIN. THICKNESS		DIMENSIONS (INCHES)				L DIMENSIONS (INCHES)			
	SPAN	RISE	IN.	GAGE	A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
30	35	24	.079	14	12	9	41	65	4:1	56	6:1	84
36	42	29	.109	12	12	9	48	72	4:1	76	6:1	114
42	49	33	.109	12	16	12	55	87	4:1	92	6:1	138
48	57	38	.109	12	16	12	63	95	4:1	112	6:1	168
54	64	43	.109	12	16	12	70	102	4:1	132	6:1	198
60	71	47	.109	12	16	12	77	109	4:1	148	6:1	222



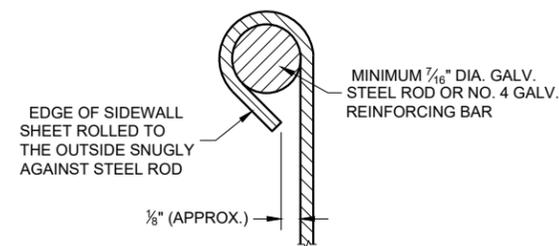
**ISOMETRIC VIEW**  
(48" SIZE ILLUSTRATED)



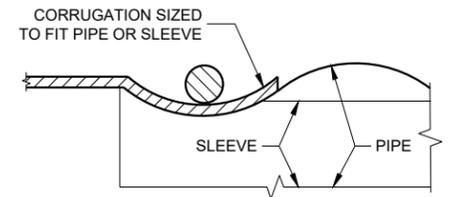
**STEEL ADAPTER SLEEVE FOR CONCRETE PIPE**

NOTE:  
STEEL END SECTION SHALL BE FIRMLY WEDGED INTO PIPE END BEFORE BACKFILLING

TAPERED SLEEVE TO BE 12 GAGE SMOOTH GALVANIZED STEEL. SEE SECTION B-B DETAIL FOR END SECTION ATTACHMENT.



**SECTION A - A**



**SECTION B - B**

## STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED CROSS DRAINS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/5/2012 DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT ENGINEER

*Steel Apron Endwalls for Culvert Pipe and Pipe Arch Sloped Cross Drains***References:**

NONE

**Bid items associated with this drawing:**

<u>ITEM NUMBER</u>	<u>DESCRIPTION</u>	<u>UNIT</u>
521.0300 - 0499	Apron Endwalls for Culvert Pipe Sloped Cross Drains Steel (size) (slope)...	EACH
521.0500 - 0699	Apron Endwalls for Pipe Arch Sloped Cross Drains Steel (size) (slope).....	EACH

**Standardized Special Provisions associated with this drawing:**

<u>STSP NUMBER</u>	<u>TITLE</u>
NONE	

**Other SDDs associated with this drawing:**

NONE

**Design Notes:**Review FDM Chapter 13 ([FDM 13-1](#)) and [FDM 11-45-30](#).**Contact Person:**

Ed Lilla (608) 266-2312